

Algal Biostimulation Testing

The Bureau of Freshwater and Biological Monitoring initiated Algal Biostimulation testing, at the request of the Division of Watershed Management's Modeling Team, to determine the amount of biologically available nutrients in a stream. This information is used to better understand seasonal nutrient and algal dynamics during the growing season. The testing method is USEPA's Algal Biostimulation assay using the green algae *Selenastrum capricornutum*, and is designed to determine nutrient limitations. Stream water samples are spiked with known amounts of nutrients to determine which nutrient is limiting. The flask with the greatest amount of observed growth shows which nutrient is limiting.

The advantages to this test are: (1) it measures the differentiation between chemically analyzed and biologically available nutrients, and (2) it is easily performed in a laboratory. Its limitations are: (1) it doesn't identify what is growth limiting other than nutrients, and (2) it is a 14-day test.

Based on this test, for the 21 sites tested (data for 6 sites sampled more than once are included) since 1999, 12 were phosphorous limited, 7 were nitrogen limited, 1 was nitrogen and phosphorous limited and 7 sites were limited by an unknown trace element.




Copies of the full report(s) may be obtained either from the Bureau of Freshwater & Biological Monitoring's webpage (www.state.nj.us/dep/wmm/bfbm/publications.html) or by calling the Bureau at (609) 292-0427.

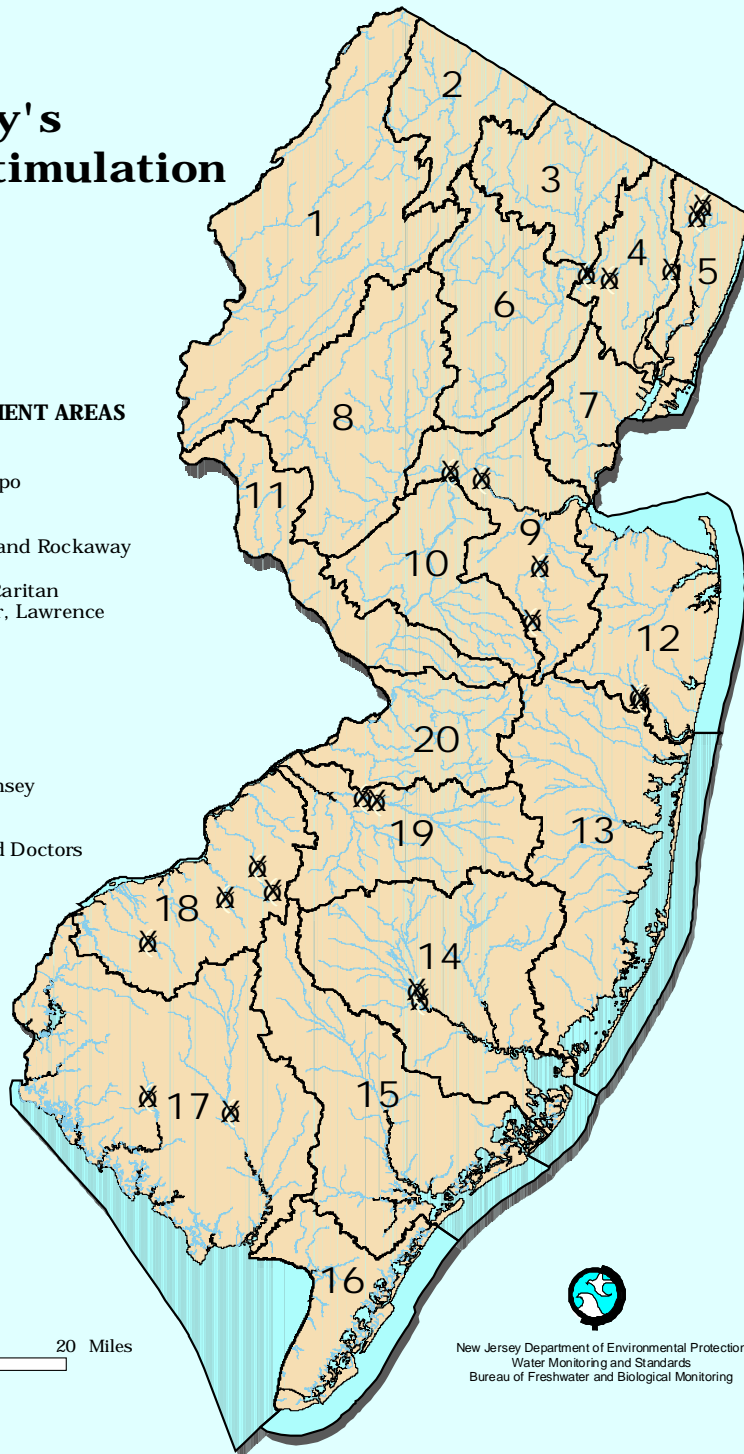
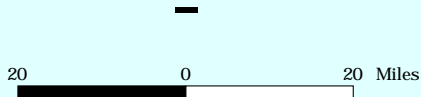
New Jersey's Algal Biostimulation Test Sites 2003

WATERSHED MANAGEMENT AREAS

1. Upper Delaware
2. Wallkill
3. Pompton, Wanaque, Ramapo
4. Lower Passaic and Saddle
5. Hackensack and Pascack
6. Upper Passaic, Whippany and Rockaway
7. Arthur Kill
8. North and South Branch Raritan
9. Lower Raritan, South River, Lawrence
10. Millstone
11. Central Delaware
12. Monmouth
13. Barnegat Bay
14. Mullica
15. Great Egg Harbor
16. Cape May
17. Maurice, Salem and Cohansey
18. Lower Delaware
19. Rancocas
20. Assiscunk, Crosswicks and Doctors

LEGEND

-  Algal Biostimulation Site
-  Watershed Management Areas
-  Major River/Stream



New Jersey Department of Environmental Protection
Water Monitoring and Standards
Bureau of Freshwater and Biological Monitoring